

STUDY OF THE CHEMICAL COMPOSITION OF TECHNICAL GRAPE VARIETIES

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Annotation

The chemical composition of some types of technical grape varieties grown in the homeland and on the territory of the Republic of Uzbekistan has been studied. The useful substances contained in grapes are compared and analyzed.

Keywords: ascorbic acid, vitamins, dry matter, total sugar, carotenoids, quantitative indicator, research, vacuum wort, bekmes, concentrate.

Introduction

The consistent economic reforms currently being carried out in agriculture should more fully meet the needs of the population with quality food products and radically improve the supply in this area. The natural and climatic conditions of Uzbekistan contribute to the sustainable development of fruit and vegetable growing, in particular viticulture. The government pays great attention to the development of this sphere in the country. (Decrees of the President of the Republic of Uzbekistan dated March 29, 2018 No. UP-5388 "On additional measures for the accelerated development of horticulture in the Republic of Uzbekistan" and dated October 23, 2019 No. UP-5853 "On approval of the Strategy for the Development of Agriculture of the Republic of Uzbekistan for 2020-2030", as well as decrees of the President of the Republic of Uzbekistan dated October 17, 2018 No. UP-5853 "On approval of additional measures to improve the efficiency of bringing products to foreign markets", PP-3978 "on measures to develop agricultural cooperation in the field of horticulture" dated March 14 2019 PP-4239).

Literature Review Analysis

Grapes are a valuable subtropical plant. Grapes, as well as products of its processing, have valuable medicinal, taste and nutritional qualities. Ripe grapes, especially winter-berry varieties, contain up to 28-30% sugars, glucose, fructose and sucrose, which are quickly absorbed by the body. Fructose is quickly absorbed without the participation of the pancreas. Because of this, it is important in the prevention of diabetes. Also, fresh grapes contain organic acids necessary for human health, such as malic, tartaric, citric, succinic, formic and some others, mineral salts, such as potassium, calcium, phosphorus, sodium, the fruit peel contains dyes (anthocyanins), tannins. substances. Grapes are rich in vitamins such as A, C, P, PP, B1, B2, B6, B12. Scientists have observed that vitamins, amino acids and trace elements belonging to group B accumulate to a greater extent in late-ripening grape varieties. Grapes are stored in special refrigerators; they can also be consumed in March-April as tasty and healing fruits. Jams, compotes, molasses, concentrates, high-quality wines are also obtained from fresh grapes. When dried, raisin varieties provide an extremely nutritious and healing product.

From grapes, winemaking products are obtained according to the technology (wine, cognac, champagne, etc.), juices in natural and semi-finished juices, concentrates (grape honey, vacuum must, bekmes, etc.); canned food (compote, marinade, jam, jam, grape paste, etc.); and is divided into secondary products, consisting of waste from the primary processing of grapes. So, for example, nutritious flour is produced from grape combs, tartaric acid from the peel, tannins from pomace, oil from seeds, and food and confectionery products from yeast. It can be noted above that viticulture is inextricably linked with the food industry. The quality of grape products largely depends on the varietal characteristics of grapes, as well as their care and climatic conditions.

Analysis Methodology

The evaluation was carried out by analysis methods of titrimetry, photometry and spectrophotometry. For example, soluble solids are defined according to GOST 29030-91, and total sugars according to GOST 8756-13.87.

Analysis and Results

The mechanical and chemical composition of technical varieties of grapes, and the harvest of different years, as well as their suitability for wine production, were studied. Technical grades are used for production of wine, juice and other. The main distinguishing feature of such varieties is a high percentage of juice in the berry (from 75 to 85% of its total mass). In the course of work in the studied varieties, the mass fraction of dry substances, the mass concentration of sugars were determined. The grape fruit contains a lot of ascorbic acid, which, along with other biologically active

substances, is of particular interest to this vitamin due to the impossibility of its synthesis in the human body. Ascorbic acid performs various biochemical functions in the human body, including antioxidant, immunostimulatory, neuromodulatory and other functions. It has been established that the source of vitamin C is contained not only in the fruits of grapes, but also in its leaves. For the study, such grape varieties as Saperavi, Riesling, Bayan - Shirey were selected.

Saperavi is a mid-season grape variety brought from Georgia. They are medium in size, round and oval in shape. With one ton of this grape, 70-77 decaliters of juice are obtained. The indicators of this grape variety are as follows: weight - 168 g, stone - 3.3%, peel - 3.7%.

Riesling is a mid-season grape variety brought from Germany and grown in Central Asia. The bunch of grapes has a small rounded shape, light green hue, the surface is covered with brown dots, and the peel is of medium thickness. The indicators of this variety are as follows: stone - 5.9%, peel - 4.6%, content of juice with pulp 86.4%. When this variety matures, it contains 18-22% sugar, 10-11 g/l acid. Table wines are produced from the grape harvest, as well as wine material for champagne.

Bayan - Shirey is a late-ripening grape variety brought from Azerbaijan and adapted for cultivation in Uzbekistan. It has a cylindrical-conical shape, the berries are located vertically in the middle position. A bunch of grapes in a rounded state, greenish-yellow hue, covered with a waxy crust on top, medium thickness, with small dots on the surface. The indicators of this variety are as follows: weight - 243.4 g, seeds - 4.6%, peel - 8.9%, juice content 85.8%. Grown in fairly cool weather, these grapes have a sugar content of around 25%. From the grape harvest produce sparkling, strong and champagne wines. It is also used to prepare wine material for the manufacture of cognac spirit.

Below are the quantitative indicators of ascorbic acid (table 1), dry matter (table 2) and the content of total sugars (table 3).

Table 1 Quantitative indicators of ascorbic acid contained in grape varieties

№	Grape variety and origin	The amount of ascorbic acid (in its homeland) mg / 100 g	The amount of ascorbic acid (in Uzbekistan) mg / 100g
1.	Saperavi (Georgia)	11,3	8,9
2.	Riesling (Germany)	10,2	7,8
3.	Bayan-Shirey (Azerbaijan)	10,7	6,7

It can be seen from Table 1 above that the Saperavi variety in Georgia has the highest content of ascorbic acid, while Bayan Shirey in Uzbekistan has the lowest content.

Table 2 Quantitative indicators of dry matter contained in grape varieties

№	Grape variety and origin	Composition of solids (in their homeland), %	Composition of solids (in Uzbekistan), %
1.	Saperavi (Georgia)	18,3	20,7
2.	Riesling (Germany)	15,3	18,6
3.	Bayan-Shirey (Azerbaijan)	16,9	19,4

Таблица 3 Quantitative indicators of total sugars contained in grape varieties

№	Grape variety and origin	Total sugar content (in their homeland), %	Total sugar content (in Uzbekistan), %
1.	Saperavi (Georgia)	16,8	19,7
2.	Riesling (Germany)	14,8	17,6
3.	Bayan-Shirey (Azerbaijan)	17,7	21,2

Tables 2 and 3 above show that the grape varieties grown in Uzbekistan have a high dry matter content (Saperavi 21.4%), while the Riesling variety grown in their homeland, this indicator is considered low (15.3%). While the total sugar content of the Bayan-Shirei variety grown in Uzbekistan is the highest (21.2%), and the Riesling variety grown in its homeland, this figure is low (14.8%).

Conclusion

Analyzing the above, we can conclude that the grape varieties grown in Uzbekistan, in terms of the content of dry matter and sugars in fruits, differ from the varieties grown in the European region. As for the content of ascorbic acid, this indicates a low content of it in grape varieties grown in Uzbekistan. The reason for this is the climatic conditions of Uzbekistan.

List of Used Literature

1. Радчевский П.П. Бессемянные сорта винограда. Краснодар: КубГАУ. – 2008. - 159 с.
2. Съян И.Н. Коллекционные подвои, их характеристика и аффинитет с некоторыми сортами новой селекции. Новочеркасск: ЮРГТУ (НПИ). – 2004. – 111 с.
3. <https://cyberleninka.ru/article/n/kompleksno-ustoychivye-sorta-introduts-enty-vinograda-dlya-proizvodstva-naturalnogo-osvetlennogo-pasterizovannogo-soka>.
4. <https://cyberleninka.ru/article/n/otsenka-sortov-vinograda-novogo-pokole-niya-kak-syrya-dlya-kompleksnoy-pererabotki>.
5. <https://cyberleninka.ru/article/n/otsenka-sortov-vinograda-dlya-proizvodstva-soka>.
6. <https://cyberleninka.ru/article/n/himiko-tehnologicheskie-pokazateli-razlichnyh-stolovyh-sortov-vinograda-ferganskoy-doliny-respublike-uzbekistan>.
7. Тожимаматова М. Ё. Изучение процесса выделения соединений магния из

-
- доломитов месторождения Шорсу //Universum: технические науки. – 2019. – №. 11-3 (68). – С. 33-36.
8. Тожимаматова М. Ё. Изучение процесса выделения вяжущих соединений магния и кальция растворением доломита в азотной кислоте //Universum: технические науки. – 2020. – №. 12-4 (81). – С. 79-81.
 9. Тожимаматова М. Ё. ФИЗИКО-ХИМИЧЕСКИЕ ПРОЦЕССЫ ПОЛУЧЕНИЯ МАГНЕЗИАЛЬНЫХ ВЯЖУЩИХ ИЗ ДОЛОМИТА И МАТЕРИАЛОВ НА ИХ ОСНОВЕ //Главный редактор: Ахметов Сайранбек Махсутович, д-р техн. наук; Заместитель главного редактора: Ахмеднабиев Расул Магомедович, канд. техн. наук; Члены редакционной коллегии. – 2021. – С. 39.
 10. Sirozhiddinova I. Rational methods of awakening and stimulation professional and creative abilities of university students //European Journal of Research and Reflection in Educational Sciences Vol. – 2019. – Т. 7. – №. 7.
 11. Бокиев Б. Р. и др. Сорбционный метод очистки производственных сточных вод //Бюллетень науки и практики. – 2018. – Т. 4. – №. 7. – С. 203-209.
 12. Mahammadovna S. I. Needs and Factors for Developing Professional and Creative Abilities of Students of Higher Educational Institutions //Annals of the Romanian Society for Cell Biology. – 2021. – Т. 25. – №. 6. – С. 2804-2810.
 13. Iroda M. et al. Rational Methods Awakening and Stimulating University Students Professional and Creative Abilities //Eastern European Scientific Journal. – 2019. – №. 1.
 14. Qizi S. G. G., Teshaboyevna D. D. Methods Of Formation Of Independent Reading Skills In Primary School Pupils //JournalNX. – С. 21-24.
 15. Kizi S. G. G. Formation Of Independent Reading Skills in Primary School Students //Texas Journal of Multidisciplinary Studies. – 2021. – Т. 2. – С. 222-224.